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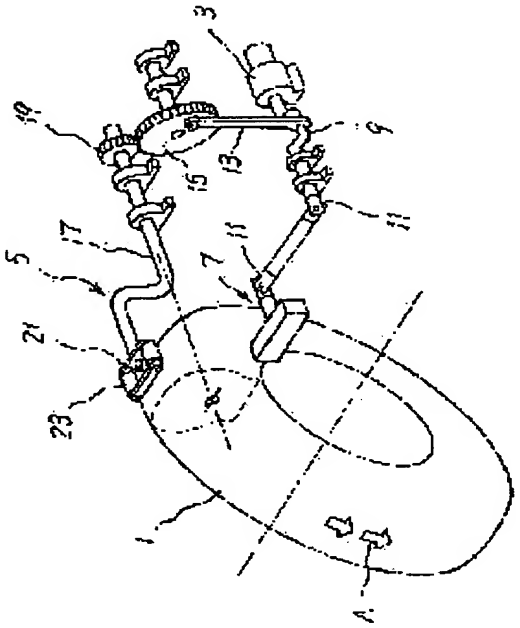
(54) CARCASS CORD STICKING DEVICE AND MANUFACTURE OF TIRE

(57)Abstract:

PROBLEM TO BE SOLVED: To simplify and make a device small, realize the setting of high speed and carry out smoothly and securely the delivery of a carcass cord at all times.

SOLUTION: While a core 1 is index operated in the peripheral direction, a carcass cord is extended in the axial line direction of the core 1 on the outer peripheral face and stuck thereon, and a rocking delivery mechanism 5 moving reciprocatingly a thread guide 21 formed on the end of an arm 17 in the core meridian line direction is provided, and a pin wind supporting the carcass cord on a turning section of the reciprocating movement of the thread guide 21 and a press section pressing the winding section of the carcass cord to the core 1 by the advance displacement to the pin are provided, and a press mechanism 7 in the index operation direction of the core 1 following the index operation of the core and restored to the original position after the pin is separated from the core is provided.



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* NOTICES *

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CLAIMS

[Claim(s)]
[Claim 1] Deducing and operating the core which makes the shape of a doughnut mostly as a whole to a hoop direction It is equipment which it is made to extend in the direction of the meridian of a core, and sticks the carcass code sent out from the thread guide on the peripheral face. While establishing the rocking delivery device in which the thread guide prepared at the tip of an arm is made to reciprocate in the direction of the core meridian along with the peripheral face of a core the pin which wraps and supports a carcass code in the cuff part of a reciprocating motion of a thread guide -- and the advance to the pin, while having the press section which a carcass code wraps and forces a part on a core with a variation rate and swinging in the direction of dividing with dividing actuation of a core Attachment equipment of the carcass code which comes to prepare the press device which returns to a former location after being isolated from the core of said pin.
[Claim 2] Attachment equipment of the carcass code according to claim 1 which comes to connect each of a rocking delivery device and a press device with the drive motor of 1.
[Claim 3] Claim 1 which comes to arrange the guide roller of the carcass code sent out from there near the thread guide, or attachment equipment of a carcass code given in 2.
[Claim 4] Attachment equipment of the carcass code according to claim 1 to 3 which comes to prepare the rocking delivery device in which a thread guide is made to reciprocate in the location comparatively distant from the core peripheral face.
[Claim 5] Attachment equipment of the carcass code according to claim 4 which comes to prepare the guide plate which shows the carcass code sent out from the thread guide to up to a core peripheral face.
[Claim 6] Attachment equipment of the carcass code according to claim 1 to 3 which comes to prepare the rocking delivery device which sticks it on a core peripheral face, sending out a carcass code from a thread guide while making a thread guide approach a core peripheral face and making it reciprocate.
[Claim 7] Attachment equipment of the carcass code according to claim 1 to 6 which comes to prepare the rocking delivery device in which the reciprocating motion path of a thread guide is specified by negotiations by the cam groove of the arm which prepared the thread guide.
[Claim 8] Attachment equipment of the carcass code according to claim 1 to 5 which comes to prepare the rocking delivery device in which the reciprocating motion path of a thread guide is specified with the radius distance from a rotation core to the thread guide of the rotation arm of the shape of a crank which prepared the thread guide.
[Claim 9] Attachment equipment of a carcass code according to claim 1 to 8 which it comes to connect with the driving means equipped with the main wheel which rotates over the necessary include-angle range, and the pinion which meshes with this main wheel with the connecting rod which connected the rocking delivery device with the motor through the crank.
[Claim 10] Attachment equipment of the carcass code according to claim 9 which comes to prepare York which the drive connection to the arm which prepared the thread guide, and said pinion is brought [York] to a rocking delivery device, and makes the thread guide reciprocate in it.
[Claim 11] claims 1-10 which come to prepare the return means to the former location of the base plate which swung it in the direction of dividing of a core in said press device while supporting pivotably the base plate which attached a pin and the press section in the holddown member with the

hinge pin of the sense which intersects perpendicularly with a core axis -- the attachment equipment of a carcass code given in either.
[Claim 12] Attachment equipment of the carcass code according to claim 11 which energizes and comes to arrange a pin at those press circles in the advance direction in said press device while energizing and arranging the rod in which attitude displacement is possible in the retreat direction to a core on a base plate and preparing the press section at the tip of this rod.
[Claim 13] Attachment equipment of the carcass code according to claim 12 which comes to prepare the cam which the back end of said rod is contacted [cam] and carries out the advance variation rate of the rod to the output shaft of a motor.
[Claim 14] On the peripheral face of the core which makes the shape of a doughnut mostly, make a carcass code continue over whole it, and it is stuck. In equipping with the reinforcement member and rubber member of a bead ring, tread rubber, and others moreover, and casting a tire While making a carcass code extend in the other end in the shape of a straight line towards an end from the other end and arranging it in it from the end of the direction of the meridian of a core again based on hoop direction dividing actuation of a core The manufacture approach of the tire characterized by winding the carcass code cuff part in each edge around a pin almost, supporting it, and sticking on a core after that in the press section to which the advance variation rate of the cuff part on a pin was carried out to the pin.
[Claim 15] hoop direction dividing actuation of a core -- advance of the press section -- a variation rate -- the manufacture approach of the tire according to claim 14 characterized by carrying out in the bottom, bringing about the variation rate to the core and this direction of the press section.
[Claim 16] The manufacture approach of the tire according to claim 14 characterized by performing hoop direction dividing actuation of a core in advance of formation of the cuff part of a carcass code, bringing about the variation rate to the core and this direction of a pin, and forming said cuff part after termination of the dividing actuation.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] Or this invention corresponds with the inner skin configuration of a product tire, it relates to the attachment equipment of the carcass code which forms a carcass automatically on the flexible or high rigid core which has the peripheral face configuration approximated to it, and the manufacture approach of the tire using it.
[0002]
[Description of the Prior Art] As this conventional kind of carcass code attachment equipment, there are some which were indicated by JP,6-155628,A, for example. This makes this eyelet reciprocate in that direction of the meridian on the peripheral face of a core using the eyelet fixed to the endless chain with which it was equipped on the block which enclosed the rigid core, and is each of that outward trip and a return trip. The segment formation part of a carcass code is arranged side by side one by one on a core peripheral face, and the cuff part of a carcass code is made to stick to a core by pressure with the press equipment which consists of a fork member and a hammer.
[0003]
[Problem(s) to be Solved by the Invention] If it is in this conventional technique, complication and enlargement of the structure as the whole equipment are obliged, and also however, especially When it is necessary for the cuff part or its near part of a code to make it become independent mutually and to arrange separately in both the bottoms of mutual relation each of the fork member which carries out attitude displacement, and a hammer In addition to the structure of press equipment and actuation becoming complicated, there is a problem of also enlarging the press equipment. And when tension acted on the carcass code penetrated and prolonged in the eyelet attached in the endless chain, the twist arose in the endless chain and there was also a problem that smooth actuation of a chain was barred.
[0004] The place which it is made as a result of examining as a technical problem that this invention solves such a trouble that the conventional technique holds, and is made into the purpose of that While simplifying the whole equipment structure, a miniaturization and improvement in the speed of equipment are realized. It miniaturizes, while also making into easy structure the press device in which proper attachment to the core of the cuff part of a carcass code is brought about. Moreover, further It is in offering the attachment equipment of the carcass code in which delivery actuation of a carcass code is closed if smooth and always certain, and the manufacture approach of the tire using it.
[0005]
[Means for Solving the Problem] The attachment equipment of a carcass code of this invention It is what it is made to extend in the direction of the meridian of a core, and sticks the carcass code sent out from the thread guide on the peripheral face, deducing and operating the core which makes the shape of a doughnut mostly as a whole to a hoop direction. For example While establishing the rocking delivery device in which the thread guide prepared at the tip of the arm which can be used as rotation or a swinging arm is made to reciprocate in the direction of the core meridian along with the peripheral face of a core For example, surround the pin and it is located. the pin which is in an advance posture in the cuff part of a reciprocating motion of a thread guide, permits the volume credit of a carcass code and supports -- and -- While a carcass code wraps, having a part and the

press section which in other words forces a part on a core by return and swinging in the direction of dividing with dividing actuation of a core with the advance displacement to a pin The press device which returns to the former location before swing after being isolated [of said pin] from a core is established.

[0006] Based on rotation or rocking movement of the arm of a rocking delivery device, under a dividing operation of a core, of course about rocking feeding device itself, spacing predetermined in the peripheral face top of a core to the hoop direction of that can be set for a carcass code as an easy and small thing, and the driving means of that can also be arranged in the shape of a straight line with this equipment according to making a thread guide reciprocate in the predetermined include-angle range.

[0007] By moreover, the thing for which the cuff part generated in a carcass code based on the reciprocating motion of a thread guide is wrapped around the pin made into the advance posture, and is supported here In a variation rate, are maintainable as it carried out expected [of the cuff part]. the round trip of a thread guide -- Generating of turbulence by there can fully be prevented by having the press section which carries out advance displacement to the pin, forcing the cuff part on a core, and sticking the cuff part to a core.

[0008] While attaching the press section at the tip of for example, an attitude rod, a pin and the press section here It considers as the relative relation which energized and attached the pin in the advance direction at the press section. When bringing about the contact to the core of a pin by the 1st-step advance of an attitude rod and bringing about the contact to the core of the press section by the 2nd-step advance, it can be simplified extremely, the configuration and actuation of a press device for the principal part can be combined, and the part can fully be miniaturized.

[0009] And since the press device in here can be swung in that direction of dividing with dividing actuation of that core under the contact condition to the core of a pin or the press section, the pin and the press section which were described previously can be operated also during this dividing actuation, and a tact time will be effectively shortened as that result.

[0010] By the way, in such equipment, each of a rocking delivery device and a press device is connected with the drive motor of 1, and the much more miniaturization and the much more cheap-izing of equipment are more preferably brought about by this.

[0011] Moreover, the guide roller of the carcass code sent out from there is preferably arranged near the opening of a thread guide. According to this, by rotation of the guide roller, delivery of a carcass code, especially the carcass code in the operation condition of tensile force can be closed, if enough.

[0012] that carcass code sent out from the thread guide in the straight-line-like extension part of a carcass code by operating said guide roller also as a sticking-by-pressure roller of a carcass code when making a thread guide approach the peripheral face of a core and making it reciprocate on the other hand -- a core peripheral face top -- immediately -- and it can be made to stick certainly

[0013] In addition, the above rocking delivery devices of equipment While everything but making a thread guide reciprocate in the location comparatively distant from the core peripheral face makes a thread guide approach a core peripheral face and makes it reciprocate as mentioned above According to the device of making a core peripheral face stick, and arranging a carcass code more at high speed according to the former device, and the latter, more positive attachment of a carcass code is attained, sending out a carcass code from a thread guide.

[0014] It is desirable to prepare the guide plate which shows the carcass code sent out from the thread guide to the predetermined location on the peripheral face of a core, in adopting the former rocking delivery device here, and it can arrange in the location which according to this sped up [the passing speed of a thread guide, as a result / of the carcass code / delivery] further, and, in addition, carried out expected [of the carcass code] correctly.

[0015] And the arm in which the rocking delivery device of equipment established the thread guide for the reciprocating motion path of a thread guide again, Shall specify by negotiations by the cam groove, and also, according to the former device, by specifying with the radius distance from a rotation core to the thread guide of the rotation arm of the shape of a crank which prepared the thread guide There is an advantage which hits making the peripheral face of a core stick directly the carcass code especially sent out from the thread guide, for example, can support effectively the press reaction force of a carcass code with a sticking-by-pressure roller by the cam groove, and according

to the latter device When you make it isolated from a core outside surface and it makes a thread guide reciprocate especially, it becomes possible to raise motion velocity further.
[0016] This rocking delivery device can make drive-system itself small easily [it is desirable to connect with the driving means equipped with the main wheel which rotates over the necessary include-angle range, and the pinion which meshes with this main wheel with the connecting rod connected with the motor through the crank, and / according to this / structure / of a drive system].
[0017] When using such a driving means, rotation movement of the arm can be carried out over the predetermined include-angle range by attaching said pinion in the rotation arm of the shape of a crank which prepared the thread guide directly. When the same, York which the indirect drive connection to the arm which prepared the thread guide, and said pinion is brought [York] to a rocking delivery device, and makes that thread guide reciprocate in it can also be prepared. Moreover, in this case Even if it is when it is made to multiply by the cam groove as the arm was mentioned above since it becomes possible to move an arm and a thread guide to the inside and outside of radial to the supporting point of York within limits which the long hole prepared in York permits, a reciprocating motion as it carried out expected to the thread guide can be made to perform.

[0018] It is desirable to establish the return means to the former location of the base plate which supported pivotably in the holddown member with the hinge pin of the sense which intersects perpendicularly with a core axis, for example, closed the base plate which attached a pin and the press section if swing was possible in the horizontal plane, and swung it in that direction of dividing with dividing actuation of a core in the press device of equipment on the other hand. Although it can constitute from a cam, a return spring, etc., even if this return means is in these any, it is suitable for it to form the stopper which prevents past [of a base plate / return].
[0019] and when such a base plate is prepared again While energizing and arranging the rod in which attitude displacement is possible in the retreat direction to a core and preparing the press section at the tip of this rod on that base plate It can be made to function as it was desirable to have energized and arranged a pin in the advance direction, a pin and the press section could be constituted in the compact on the same axle with easy structure according to this and it moreover carried out expected [of a pin and the press section] to the press circles only by attitude actuation of a rod.
[0020] By the way, attitude actuation of a rod can be performed by preparing the cam which contacts the back end of a rod in the output shaft of a common motor. In addition, one [at least] advance actuation of the pin and the press section under a swing condition which the base plate mentioned above, or the maintenance to an advance condition can cope with it by making the above-mentioned cam follow swing of a base plate under an operation of a universal joint.
[0021] The manufacture approach of the tire this invention a carcass code here on the peripheral face of the core which makes the shape of a doughnut mostly It is made to continue over whole it and sticks. On it A bead ring, In equipping with the reinforcement member and rubber member of tread rubber and others, and casting a tire While making a carcass code extend in the other end in the shape of a straight line towards an end from the other end and arranging it in it from the end of the direction of the meridian of a core again based on hoop direction dividing actuation of a core The carcass code cuff part in each edge is almost wound around a pin, and is supported, and it sticks on a core after that in the press section to which the advance variation rate of the cuff part on a pin was carried out to the pin.
[0022] In addition, the hoop direction dividing actuation of a core in here It can carry out under advance displacement of the press section, bringing about the variation rate to the core and this direction of the press section. Moreover, the dividing actuation can be performed in advance of formation of the cuff part of a carcass code, bringing about the variation rate to the core and this direction of a pin, and said cuff part can also be formed after termination of the dividing actuation.
[0023]
[Embodiment of the Invention] Based on the place which shows the gestalt of implementation of this invention to a drawing, it explains below. Drawing 1 is the approximate perspective view showing the gestalt of implementation of this invention, and this makes a thread guide reciprocate in the location comparatively distant from the core peripheral face.

[0024] One in drawing shows the core which makes the shape of a doughnut mostly as a whole, and predetermined include-angle [every] dividing actuation of this core 1 is carried out in the direction shown by the arrow head A by a diagram. Moreover, 3 shows the GIADO motor of 1 as a driving source common to each device, and the output of this GIADO motor 3 is transmitted to each of the rocking delivery device 5 and the press device 7. In addition, although it is not clear from the place shown in drawing, the press device 7 is arranged in the both-sides section of a core 1.
[0025] This accumulates and a crank 9 and two universal SHOINTO 11 are minded for the output shaft of the GIADO motor 3 here. Drive connection is carried out, and it combines with two cams which each press device 7 mentions later, and connects with a main wheel 15 through the connecting rod 13 connected with that crank 9, and this main wheel 15 is meshed with the pinion 19 attached in the rotation arm 17 which makes the shape of a crank of the rocking delivery device 5. In addition, in such a drive system, when there is need, a reducer, a gearing, etc. can be suitably infixed in pars intermedia.
[0026] By the way, when shown in drawing, one revolution of a crank 9 is convertible for rotation of the include-angle range of **120 degrees of a pinion 19 by being able to rotate a main wheel 15 in [include-angle] **60 degrees by one revolution of a crank 9 in the arm length of a crank 9, and setting the gear ratio of a main wheel 15 and a pinion 19 to 2:1 by selection of a main wheel diameter etc.
[0027] Here, the rocking delivery device 5 comes to prepare the thread guide 21 which is clear from the place shown in drawing 2 at the tip in drawing of the rotation arm 17 which makes the shape of a crank mostly while necessary distance eccentricity of the part for a front flank is carried out and it locates it to the rotation core by the side of back. In addition, when a profile configuration is a radii configuration the outside in the meridian cross section of a core 1, it can choose so that a thread guide 21 may reciprocate near the **** of a core peripheral face, and also the eccentricity in here can also be chosen so that it may reciprocate in the location where the thread guide 21 separated comparatively that it was a radii configuration with a profile configuration simple outside [said] a core 1 from the core peripheral face irrespective of no. moreover, by making the rotation arm 17 into hollow structure, the whole is operated as interior material of a proposal of a carcass code, and let a tip opening part be a thread guide 21 here -- **** -- it is also possible to attach the thread guide of another object configuration in a part for the point of the rotation arm 17.
[0028] By the way, as delivery of the carcass code from a thread guide 21 is shown in drawing 2 (a), it is possible to carry out directly, and as shown in drawing 1 and drawing 2 (b), it can also carry out through the guide roller 23 of the pair which is arranged near the thread guide 21 and rotates freely on the occasion of the reciprocating motion of a thread guide 21, and according to the latter, the carcass code under an operation of tensile force can be sent out more smoothly.
[0029] When the rocking delivery device 5 is constituted in this way It is based on rotation of the GIADO motor 3. By **60 degrees rotation movement of a main wheel 15, and **120-degree rotation movement of a pinion 19 a thread guide 21 As shown in drawing 3 with the meridian sectional view of a core 1, by the surroundings based on [by the side of the back of an arm 17 / O] rotation In the location comparatively distant from the core peripheral face by making eccentricity R to it into a radius It can reciprocate over the include-angle range of **120 degrees, and from the necessary end of a core 1 to the other end, the carcass code sent out from the thread guide 21 by this will make it extend in the direction of the meridian in the shape of a straight line, and will be arranged.
[0030] Since it becomes especially late in the part which changes the passing speed of the thread guide 21, as a result the delivery rate of the carcass code from a thread guide 21 to **** from the double action from ****, or double action in making a thread guide 21 reciprocate in this way, it can have the pin of the press device mentioned later, and fear of fracture of the carcass code for rolling the cuff part of the carcass code almost, and supporting can fully be removed.
[0031] thus, in making a thread guide 21 reciprocate in the location distant from the core peripheral face As shown in drawing 4 , according to this guide plate 25 that can arrange a guide plate 25 between that thread guide 21 and core peripheral face, for example, comes to arrange glass plate 25a and others of a two-sheet pair at the predetermined spacing The inner skin is made to meet the peripheral face of a core 1. Preferably Even if it makes a thread guide 21 reciprocate more at high

speed, and the wave of a core hoop direction etc. arises in the carcass code ca or dispersion arises in it at the moving trucking of a thread guide 21 by making a peripheral face meet the movement locus of a thread guide 21, and forming it, respectively It can show correctly the carcass code ca to the necessary location on a core peripheral face.

[0032] Here, when it constitutes a guide plate 25 from glass plate 25a of a pair, it is desirable to make those spacing larger than the size of the carcass code ca for how many minutes in the part near the periphery edge at least. In addition, a guide plate 25 can also be constituted from one rigid plate of a glass plate and others, and in this case, the carcass code ca sent out from the thread guide 21 will be guided on one side face of that guide plate 25, and will arrive at the necessary location of a core peripheral face.

[0033] Drawing 5 is other operation gestalten of the equipment concerning this invention, and the important section approximate perspective view showing a rocking delivery device especially, and drawing 6 is the fragmentary sectional view showing even the drive system of that.

[0034] While forming the same thread guide 37 at the tip of the arm 35 which connected the back end with the holddown member through spherical bearing 33 with having mentioned above by the rocking delivery device 31 shown here Front flank part 35a of the arm 35 under an operation of hinge region 35b If in the direction close to the peripheral face of a core 1, while closing, the front flank part 35a is energized to the peripheral face side of a core 1 with the spring means 39 which can be made into coiled spring as shown in drawing 6 , a scissors form spring, and others. Moreover, displacement is made free within the long hole 41a which it was made to extend in the die-length direction of York 41, and prepared it while multiplying such an arm 35 by long hole 41a of York 41 as for which rotation movement is carried out around the supporting point by the driving means mentioned later here. On the other hand, from the negotiations section to York 41 of an arm 35, form a front part in the fixed cam plate 43, it is made to multiply by the meridian cross-section border line of a core 1, and the cam groove 45 which makes a similarity configuration mostly through a cam follower 47 preferably, and the arm 35 based on rotation movement of said York 41, as a result the reciprocating motion path of a thread guide 37 are specified by this. Here, the fixed cam plate 43 extends in the direction of the meridian of a core 1, from the peripheral face of a core 1, sets spacing of how many minutes and is located.

[0035] By the way, near the opening of a thread guide 37, arrange the guide roller 49 of the same pair with having stated previously, and by these guide rollers 49, if , while closing delivery of the carcass code ca Sticking by pressure to a core peripheral face, as a result attachment of the carcass code ca sent out from there with the reciprocating motion of a thread guide 37 by pressing both those guide rollers 49 by the necessary force to a core peripheral face according to an operation of the spring means 39 are closed if . Therefore, a guide roller 49 will function as a sticking-by-pressure roller in this case.

[0036] In addition, although it is also possible to constitute so that it may rotate in one to the surroundings based on [of a thread guide 37] openings, the guide roller 49 of such a pair Like illustration under an operation of the cam follower 47 which fixed [fixed] on the arm 35 When front flank part 35a of that controls the reciprocating motion posture of an arm 35 to always be energized by the spring means 39 at the peripheral face side of a core 1, this is not necessarily required.

[0037] And like the above-mentioned case, while the driving means in here connects the output shaft of the GIADO motor 3 with a main wheel 15 through a crank 9 and a connecting rod 13 It can constitute by meshing this main wheel 15 with a pinion 19, and that York 41 can be rotated in the necessary include-angle range around the axis of an output shaft by attaching said York 41 on the output shaft of that pinion 19.

[0038] Drawing 7 is the mimetic diagram showing the relation of actuation of such a drive system, and actuation of the rocking delivery device 31. For example By actuation of a crank 9, **60 degrees of main wheels 15 rotate, and when **120 degrees of pinions 19 which mesh to it rotate, York 41 is also rotated in [include-angle] **120 degrees with the output shaft of a pinion 19. As the result a thread guide 37 also reciprocates in [include-angle] **120 degrees along with the peripheral face of a core 1 -- ******** -- a guide roller 49 -- the include-angle range -- the whole will be covered mostly and the carcass code ca will be stuck on a core peripheral face.

[0039] In consideration of the configuration and actuation of a press device which are explained in

full detail behind, drawing 8 adds an improvement to a cam mechanism so that it may make such actuation of the above-mentioned rocking delivery device 31 have [no fear / device / it and / press / of interference] more smoothly, and ensure.
[0040] In addition to the place shown in drawing 5 , this cam mechanism sets a part for the radial toe of a cam groove 45 to extension partial 45a. In other words, by the outside of this extension partial 45a, and the side which is separated from a core 1 up and down long to the cam plate 43, while supporting the interstitial segment of the cam 51 of an eyebrows configuration pivotably mostly Spring energization of the cam 51 is carried out so that it may become the predetermined inclination posture of the sense in which the lower limit section approaches a cam groove 45, and the auxiliary cam follower 53 in contact with the peripheral surface of a cam 51 is further formed at the tip of the middle tee of an arm 35.
[0041] It faces according to such a configuration, a cam follower 47 being guided at a cam groove 45, and arriving at the lower limit of extension partial 45a of that. Near the extension partial 45a As shown in drawing 9 (a), based on the auxiliary cam follower 53 being guided on the cam-groove side front face of a cam 51, a cam follower 47 imitates the inner circumference side edge of extension partial 45a, and a downward variation rate is carried out. As this result Attachment of the carcass code to the core peripheral face by the guide roller 49 is continued.
[0042] It will show around on the front face of the side which is separated from the cam groove 45 of a cam 51 as when a cam follower 47 carries out rise displacement from the lower limit of extension partial 45a on the other hand and a cam 51 returns to a predetermined inclination posture according to an operation of a spring shows the auxiliary cam follower 53 to drawing 9 (b), a cam follower 47 will imitate the periphery side edge of extension partial 45a, and a rise variation rate will be carried out. Therefore, in the formation field of extension partial 45a, a guide roller 49 will isolate only the distance according to the width of face of the extension partial 45a from a core peripheral face, and will go up, and attachment of a carcass code is not performed in the meantime.
[0043] In addition, it is required to consider as the configuration in which a limit is added to an operation of the spring means 39 which described such elongation from the core peripheral face of a guide roller 49 in relation to drawing 6 in order to close, if , and front flank part 35a of an arm 35 does not bend to an arm body part more than a predetermined include angle.
[0044] Drawing 10 is the perspective view of the press device arranged in each flank of a core, and this press device 7 can be applied to any rocking delivery devices 5 and 31 described previously.
[0045] This base plate 55 can make that front end side swing in a level field substantially to the dividing actuation direction A side of a core 1 by a diagram by 55 in drawing showing the base plate which supports the device section by supporting pivotably the back end section which is separated from a core 1 in a holddown member 59 with the hinge pin 57 prolonged in the direction which intersects perpendicularly with a core axis. However, the swing to hard flow is prevented by the stopper which is not illustrated with said dividing actuation direction A of this base plate 55.
[0046] Here, while supporting the rod 61 which gave the baffle preferably possible [attitude displacement] to a core 1 through a bearing 63 on this base plate 55, it has coiled spring 65 for the rod 61, and energizes in the retreat direction. And the press section 67 which makes the shape of a cylinder mostly as a whole is attached at the tip of this rod 61, and the pin 69 which carried out spring energization in the advance direction is further arranged in these press circles.
[0047] The axis of both rod 61 and pin 69 is made into the relative posture with which the rod axis inclined toward the dividing actuation direction A side of a core 1 a little to the pin axis, and it considers as the so-called round shoulder of the back end section of the press section 67 which the above-mentioned dividing actuation direction A at least rounded [the shoulder part of the opposite side / ** and] for the angle preferably here.
[0048] moreover, the attitude corresponding to necessary [of such the press section 67 and a pin 69] here -- the cam follower 71 prepared in the back end of a rod 61 in order to bring about a variation rate contacts the peripheral surface of the cam 73 connected with the output shaft of the GIADO motor 3 shown in drawing 1 through the crank 9 and the universal joint 11. In addition, this cam 73 is supporting to a holddown-member side with the bearing which does not illustrate driving shaft 73a, and is positioned by the position.
[0049] advance of the press section [as opposed to / while this cam 73 carries out the advance

variation rate of each of the press section 67 and a pin 69 and makes a pin 69 contact a core side face by press of a rod 61 / a pin 69 by the further press of the rod 61] 67 -- a variation rate -- bringing -- just -- being alike -- it functions in order to also make the apical surface of the press section 67 contact the side face of a core 1.

[0050] By the way, since it is necessary to continue in addition during swing of not only the condition before swing of a base plate 55 like illustration but that, and after swing, such a function of a cam 73 Here, thickness of a cam 73 is made sufficiently thick, and in having the relative displacement of the cam follower 71 to the thickness direction of a cam 73, and collateralizing contact of always on the front face of a cam of a cam follower 71, a cam 73 is closed, if correspondence in swing movement of a base plate 55 is possible.

[0051] The contact to the core side face of the press section 67 in addition, the cuff part of the shape of U character of the carcass code ca primarily sent out according to the rocking delivery devices 5 and 31 described previously here the indispensable process for sticking on the peripheral face of a core 1 certainly -- it is also -- in this case Depending on usually, rubber kinds, such as inner liner rubber by which coating is carried out, and coating rubber of the carcass code ca, to the peripheral face of a core 1 Since there is also a possibility that it may have sufficient reinforcement for the inner liner rubber, and the carcass code ca by which rubber coating was carried out only by the mere press by the press section 67 may not be made to stick By having the fixed heat tracing means 75 which can be used as a far-infrared heater, and heating the press section 67 beforehand, as shown in drawing 11 when such, directly It is desirable to heighten the attachment force to the inner liner rubber of carcass code coating rubber. Moreover, in using such a fixed heat tracing means 75, there is almost no possibility of heating unnecessarily, the pin 69 which wraps temporarily the cuff part of the shape of U character of the rubber coating carcass code ca, and supports it is combined, and there is also no fear of cutting, such as wiring.

[0052] Further And the pin 69 to a core flank, Or it originates in dividing actuation of the core 1 under contact of a pin 69 and the press section 67. After swinging in the direction of dividing with those pins 69 and the press section 67, a base plate 55 more to accuracy A return in the former location shown in drawing 10 of the base plate 55 after the press section 67 after the swing, and termination of an operation of a pin 69 For example, it is based on an operation of the return spring of the comparatively small spring force of extent which does not check swing actuation of a base plate 55. After both the press section 67 and the pin 69 are isolated from a core peripheral face, can carry out by pulling back the base plate 55 to the location which contacts a stopper, and also as shown in drawing 12 It can also carry out by putting back a base plate 55 positively by the cam 77 which doubles timing with actuation of actuation of a cam 73 as a result the press section 67, and a pin 69, and operates. driving shaft 73a of a cam 73 which actuation of the cam 77 in the case of this latter brings an operation of a rod 61 -- a gearing pair -- driven shaft 77a which carried out drive connection through 79 -- a bevel gear pair -- it can be made to carry out by connecting with a cam 77 by 81

[0053] Thus, the press device 7 which it comes to constitute is the following, can be made and can be operated. Under an operation of the rocking delivery device shown in drawing 1 or drawing 5 , the carcass code ca sent out from a thread guide 21 or 37 In making the other end extend in the shape of a straight line towards the other end to an end, and arranging in it from the end of the direction of the meridian of the core 1, again Based on hoop direction dividing actuation of a core 1, the cuff part of the shape of U character of the carcass code ca generated at each above-mentioned edge proper to a core peripheral face And first, as shown to drawing 13 (a) and (b) in a partial approximate plan view and a partial approximate line side elevation, the carcass code ca sent out from the thread guide 21 here, in order to stick certainly After reaching the end of the direction of the meridian, as shown in drawing 14 (b), an advance variation rate is carried out, and a pin 69 is made to contact a core peripheral face based on actuation of a cam 73 from the retreat posture in which the press section 67 and a pin 69 are shown in drawing 14 (a). Drawing 15 (a) and (b) are the same drawings as drawing 13 which shows this condition, and the carcass code ca will extend here between the rods 61 and pins 69 which are offset and located mutually.

[0054] After that, pass the tooth-back side of the press section 67 which is in an advance condition about a thread guide 21. By following and carrying out the double-acting variation rate of the almost

same path as the outward trip of that, and letting the carcass code ca sent out with this double-acting displacement slide on the round shoulder of the press section 67 As shown in drawing 16 , while forming a U character-like cuff part in the carcass code ca, the volume credit to the pin 69 of the cuff part is brought about.

[0055] In realizing such volume credit to the pin 69 of the carcass code ca, according to by the way, the rocking delivery device 31 in which the carcass code ca is shown in drawing 5 In arranging making a core peripheral face stick with a guide roller 49 On the outward trip of a guide roller 49, for example, under an operation of the cam groove 45 which described the guide roller 49 in relation to drawing 9 (a) As shown to drawing 17 (a) in the approximate line sectional view of the direction of the meridian of a core, until it reaches the end of the direction of the meridian A variation rate is faced. a core peripheral face -- the double action of a guide roller 49 after contact or contact of the pin 69 to a core peripheral face as made approach enough, and made carry out a variation rate and shown in drawing 17 (b) -- Based on an operation of the cam groove 45 which described drawing 9 (b), as shown in drawing 17 (c), the variation rate of the guide roller 49 is carried out through the back of the press section 67. By this under an operation of the round shoulder of the press section 67 The cuff part of the carcass code ca is wrapped around a pin 69 as shown in drawing 16 .

[0056] therefore, the pin 69 of the U character-like cuff part of the carcass code ca -- wrapping -- a rocking delivery device does not have the exception that it is that it is indicated to drawing 5 that is what is shown in drawing 1 , and will be performed almost similarly.

[0057] In addition, the carcass code ca which drawing 18 (a), (b), and (c) are the approximate line cross-section perspective views showing these processes of a series of, and was sent out from the thread guide 37 will be suitably stuck on a core peripheral face by either of the guide rollers 49 of the pair located on both sides of it. In addition, 83 in drawing shows the bead code beforehand arranged in the both-sides section of a core 1.

[0058] in addition, the double action which a guide roller 49 follows after that by the rocking delivery device 31 shown in drawing 5 -- as this also shows a variation rate to drawing 17 (d) under an operation of a cam groove 45, it will be carried out in the condition of having made the core peripheral face contacting, and the attachment to the core peripheral face of the sent-out carcass code ca which becomes enough will be secured.

[0059] After performing volume credit of the carcass code ca to a pin 69 as mentioned above It has a cam 73, or it heated beforehand, and the spring force of compression spring 69a for a pin 69 is resisted, the advance variation rate of the non-heating press section 67 is carried out further, and, thereby, the apical surface of the press section 67 is also made to contact a core peripheral face in addition to a pin 69, as shown in drawing 14 (c).

[0060] Drawing 19 is the approximate plan view and approximate line side elevation showing this, it faces making the press section 67 contact a core peripheral face as mentioned above, and a core peripheral face will be contacted by the sufficiently big force with the cuff part of the carcass code ca which wraps that press section 67 around a pin 69, and is supported, and necessary attachment to the core peripheral face of a carcass code cuff part will be performed as this result here.

[0061] While making such attachment of the carcass code cuff part by the press section 67 into a positive thing here In order to fully remove fear of generating of a code resulting from double-acting movement of the after that of a thread guide 21, such as turbulence Since ** which continues the above code press by the press section 67 until it results in termination of the dividing actuation of a core 1 for reservation of the double-acting movement path of a thread guide 21 is suitable, here Dividing actuation of the specified quantity is made to perform to a core 1, with the contact condition to the core 1 as shown in drawing 14 (c) of the press section 67 and a pin 69 maintained. In this case, both, since the press section 67 and a pin 69 touch by big frictional force to a core peripheral face, as an arrow head B shows, as for the base plate 55 which supports them, as a result them, they will swing only the amount which corresponds with that dividing travel in the above-mentioned dividing actuation direction around a hinge pin 57 to drawing 10 with that dividing actuation of a core 1.

[0062] Drawing 20 is drawing of a core 1 showing the condition after termination of such dividing actuation, and the double-acting path which sets predetermined spacing will be secured from the **** path of the thread guide 21 which always reciprocates by the dividing actuation in a fixed

location.
[0063] After an appropriate time, double-acting movement as shown in a thread guide 21 at drawing 21 is made to perform, and the same process as the place mentioned above in the termination location of the double-acting movement is repeated.
[0064] The press device 7 which, on the other hand, finished the necessary attachment activity over the code cuff part of 1 The press section 67 of that, and each of a pin 69 under an operation of a cam 73 While making the former location shown in drawing 14 (a) carry out a retreat variation rate, the next activity can be stood by by having other cams 77 and returning the base plate 55 in a swing condition to the posture before swing.
[0065] As mentioned above, although the case where dividing actuation of a core 1 was performed after making both press section 67 and both pin 69 contact a core peripheral face as shown in drawing 19 was explained Can also perform the dividing actuation under the condition of having made only the pin 69 contacting a core peripheral face as shown in drawing 15 , and according to the latter Since the double-acting path of a thread guide 21 is secured more at an early stage, double-acting movement of the thread guide 21 can be started to early timing as compared with the former, and, thereby, compaction of the cycle time is attained.
[0066] And according to the latter, it is not necessarily required to make the axis of the rod 61 of the press device 7 and the axis of a pin 69 offset, and it sets in relation with the dividing travel of a core 1. It also becomes possible to omit round shoulder-ization of the back end section shoulder part of the press section 67, and, therefore, the wrapping injury of it to the pin 69 of **, in addition the U character-like cuff part of the carcass code ca is attained at this.
[0067] Drawing 22 -24 are drawing showing the whole equipment which comes to incorporate the basic structure of the various device sections described above, and dividing actuation for every predetermined include angle of a core 1 can be realized by connecting the support shaft 85 of that with a servo motor 89 through the coupling 87 in which hang/unhang is free, as shown to drawing 22 in a front view.
[0068] moreover, the direction which intersects perpendicularly with space according to an operation of the direct-acting guide 91 under balking of coupling 87 so that it may close processing of prior [to it], or subsequent, if this core 1 is possible -- for example, the rocking delivery device 93 and press device 95 grade -- ** -- horizontal migration can be carried out.
[0069] The drive system of the rocking delivery device 93 connects with a main wheel 15 the output shaft of the GIADO motor 3 arranged on the base frame 97 through a crank 9 and a connecting rod 13 here, as shown in drawing 23 . It can constitute by connecting with the rotation arm 17 the pinion 19 meshed with the main wheel 15, and the rotation arm 17 can operate by this like what is shown in drawing 1 .
[0070] On the other hand, the drive system of the press device 95 shown here is different a little, and it connects the place described previously with the pulley 107 which was connected with this gearing 101 and which attached the pulley 103 in driving shaft 73a of a cam 73 through the belt 105, for example while meshing a gearing 101 with the gearing 99 which prepared in the output shaft of the GIADO motor 3. According to this drive system, universal JOINTO 11 described previously can be closed if . In addition, the combination structure of the pulley 103,107 of illustration and a belt 105 can also be changed into chain transmission structure.
[0071] And the code delivery section of the rocking delivery device 93 in here further At the tip of an arm 17 rotated on susceptor 109 so that clearly from the place shown in drawing 24 While attaching the code path 113 through block 111, separating the thread guide 115 at the tip of this code path 113 and arranging the guide roller 117 of a pair With the spring means 119 arranged in block 111, energize code path itself down the drawing, combine it, and each cam follower 121,123 is minded for block 111 order. While making it multiply by each cam groove 129,131 prepared in the fixed cam plate 125,127 It has the roller 137 which arranged the pars intermedia of the block 111 through the bracket 133 and the code guide 135 which were fixed there. It makes it come to multiply by the peripheral face of the tip side fixed cam plate 125. Said spring means 119 Functioning [and] in order to bring about regular contact preferably, a cam follower 121,123, and roller 137 and others collateralize exact migration as [to the core peripheral face of a guide roller 117] the block 111, as a result the thread guide 115 carried out expected.

[0072]
[Effect of the Invention] According to this invention, each of a rocking delivery device and a press device by both considering as the small thing of easy structure so that clearly from the place described above A miniaturization and improvement in the speed of the whole equipment are fully realizable. Again If always smooth in actuation of both those devices, in total, it can be made to be able to carry out certainly as it carried out expected [of the attachment to the core peripheral face of delivery arrangement of the carcass code to a core peripheral face top, and the cuff part of a carcass code], and generating of turbulence etc. of a code can fully be prevented.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the approximate perspective view showing the operation gestalt of this invention.
[Drawing 2] It is the perspective view showing the delivery mode of a carcass code.
[Drawing 3] It is drawing showing the rocking field of the thread guide to the meridian cross section of a core.
[Drawing 4] It is drawing showing a guide plate and the application condition of that.
[Drawing 5] It is the important section approximate perspective view showing other operation gestalten of this invention.
[Drawing 6] It is the fragmentary sectional view showing even the drive system of the equipment shown in drawing 5 .
[Drawing 7] It is the mimetic diagram showing the relation of actuation of the drive system of the equipment shown in drawing 6 , and actuation of the device of a rocking delivery.
[Drawing 8] It is the important section perspective view showing the example of an improvement of a cam mechanism.
[Drawing 9] It is the actuation explanatory view of a cam mechanism shown in drawing 8 .
[Drawing 10] It is the perspective view of a press device.
[Drawing 11] It is the perspective view which illustrates the heating condition of the press section.
[Drawing 12] It is the approximate perspective view showing the return cam mechanism of a base plate.
[Drawing 13] It is the approximate plan view and approximate line side elevation showing the arrangement condition of the carcass code to the end of the direction of the core meridian.
[Drawing 14] It is the important section sectional view showing an operation of a press device.
[Drawing 15] It is the same drawing as drawing 13 which shows an operation of the pin of a press device.
[Drawing 16] It is the same drawing as drawing 13 to the pin of a code cuff part which wraps and shows a condition.
[Drawing 17] It is process drawing showing the moving trucking of the guide roller of the equipment shown in drawing 5 .
[Drawing 18] It is the approximate line cross-section perspective view of the process shown in drawing 17 .
[Drawing 19] It is the same drawing as drawing 13 which shows an operation of the press section of a press device.
[Drawing 20] It is the same drawing as drawing 13 which shows the secured condition of the double-acting path of a thread guide.
[Drawing 21] It is the same drawing as drawing 13 which shows the double-acting path of a thread guide.
[Drawing 22] It is the front view showing the whole equipment.
[Drawing 23] It is the expansion side elevation showing a drive system.
[Drawing 24] It is the expansion side elevation showing the code delivery section.
[Description of Notations]
1 Core
3 GIADO Motor

5, 31, 93 Rocking delivery device
7 95 Press device
9 Crank
11 Universal Joint
13 Connecting Rod
15 Main Wheel
17 Rotation Arm
19 Pinion
21 37,115 Thread guide
23 49,117 Guide roller
25 Guide Plate
25a Glass plate
33 Spherical Bearing
35 Arm
35a A part for a front flank
35b Hinge region
39,119 Spring means
41 York
41a Long hole
43,125,127 Fixed cam plate
45,129,131 Cam groove
45a Extension part
47,121,123 Cam follower
51 Cam
53 Auxiliary Cam Follower
55 Base Plate
57 Hinge Pin
59 Holddown Member
61 Rod
63 Bearing
65 Coiled Spring
67 Press Section
69 Pin
71 Cam Follower
73 Cam
73a Driving shaft
75 Heat Tracing Means
77 Cam
77a Driven shaft
79 Gearing Pair
81 Bevel Gear Pair
83 Bead Code
85 Support Shaft
87 Coupling
89 Servo Motor
91 Direct-acting Guide
97 Base Frame
99,101 Gearing
103,107 Pulley
105 Belt
109 Susceptor
111 Block
113 Code Path
133 Bracket

135 Code Guide
137 Roller
ca Carcass code

[Translation done.]

* NOTICES *

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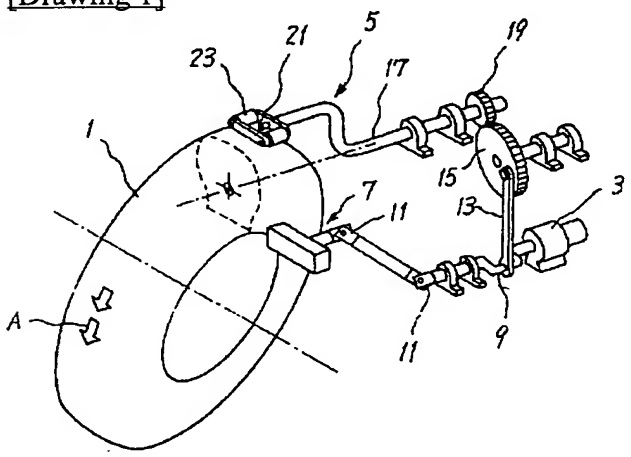
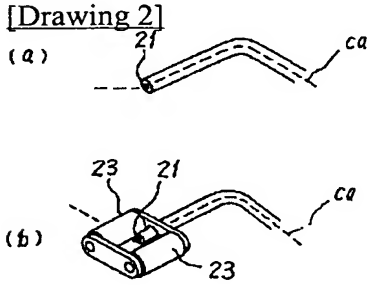
3.In the drawings, any words are not translated.

DRAWINGS

[Drawing 1]



[Drawing 2]



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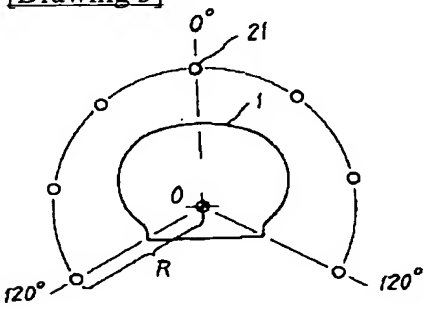
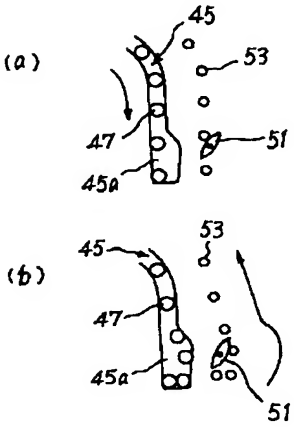


[Drawing 9]



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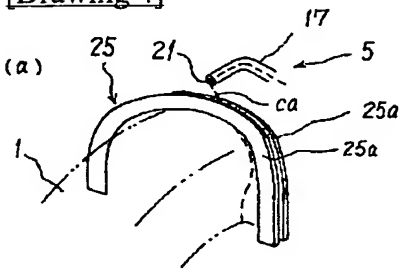

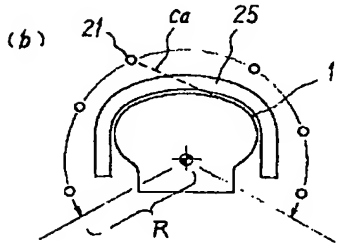

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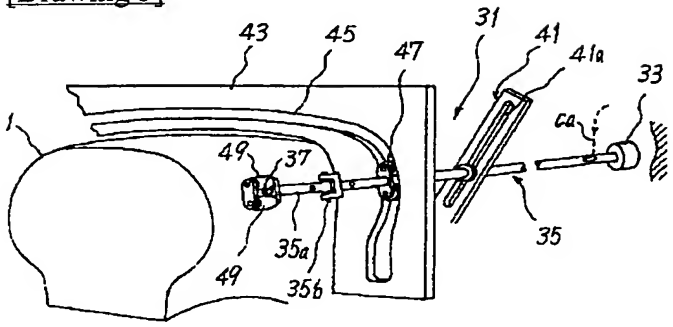

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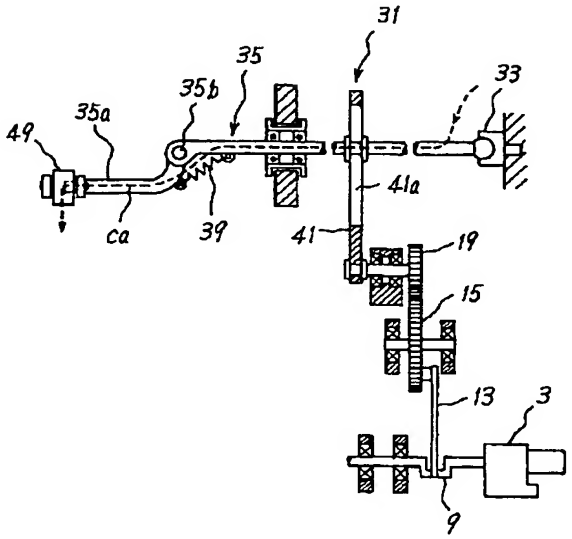

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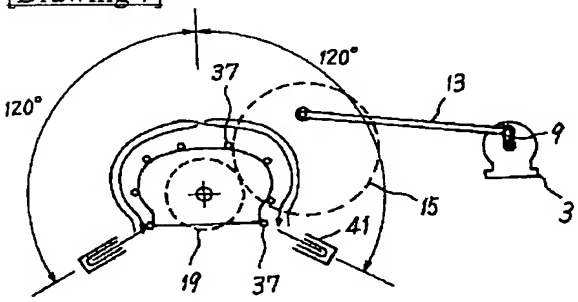

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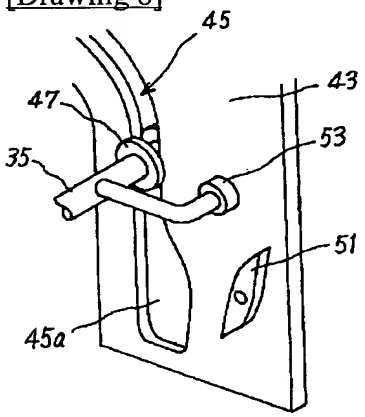
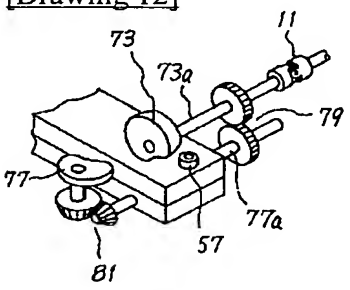


[Drawing 12]



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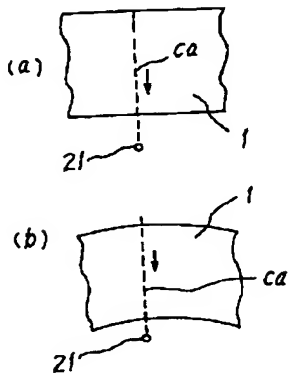

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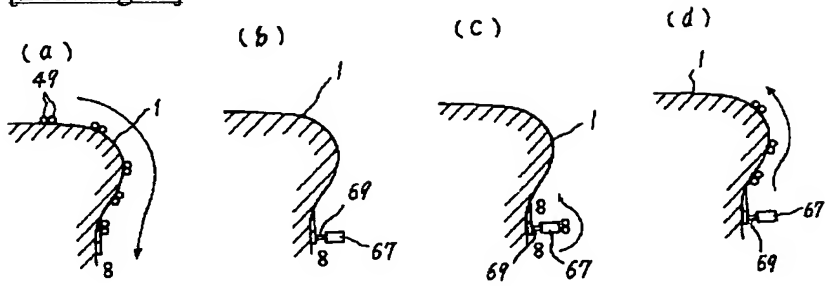

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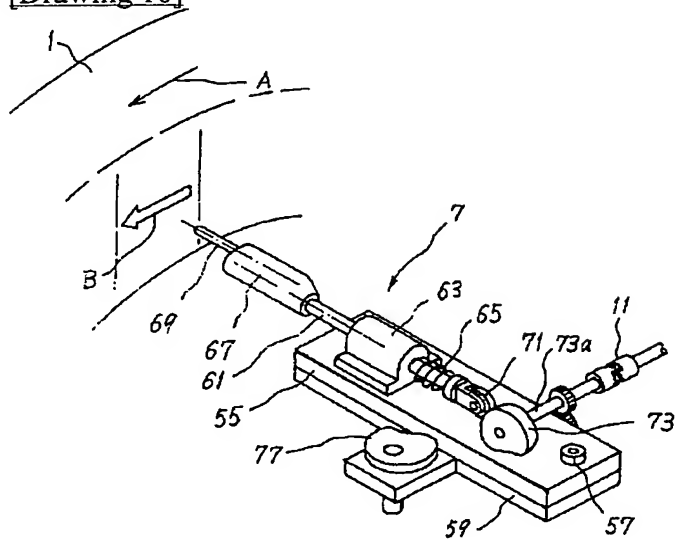

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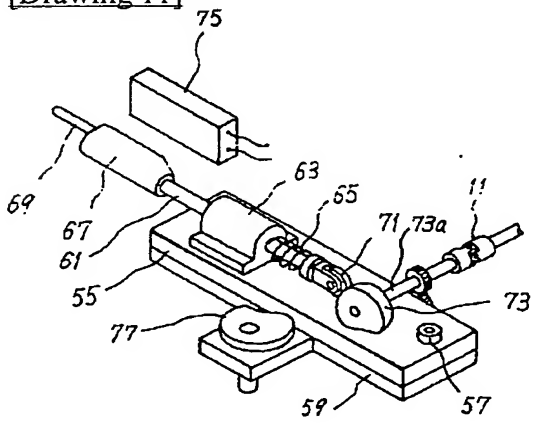
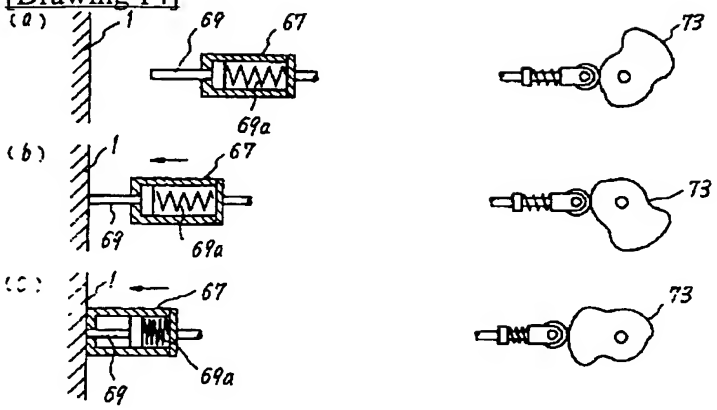


[Drawing 14]



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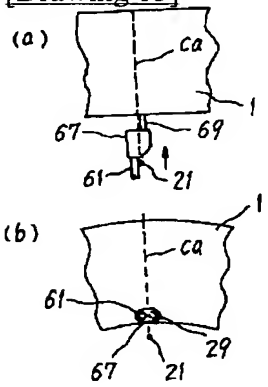

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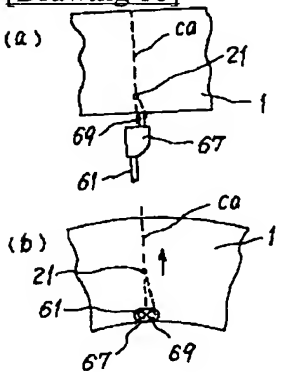

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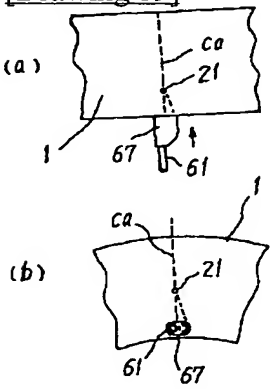

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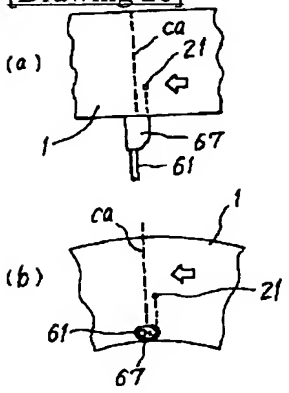

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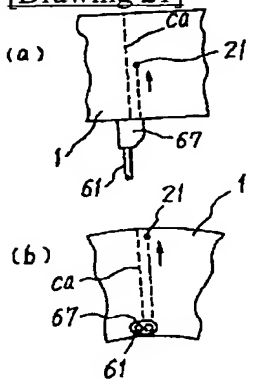

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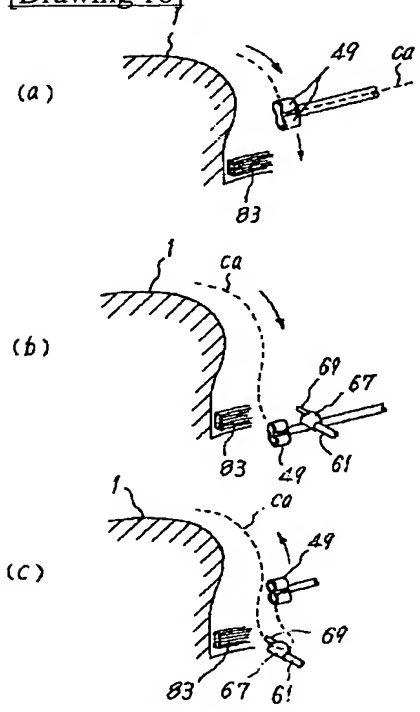

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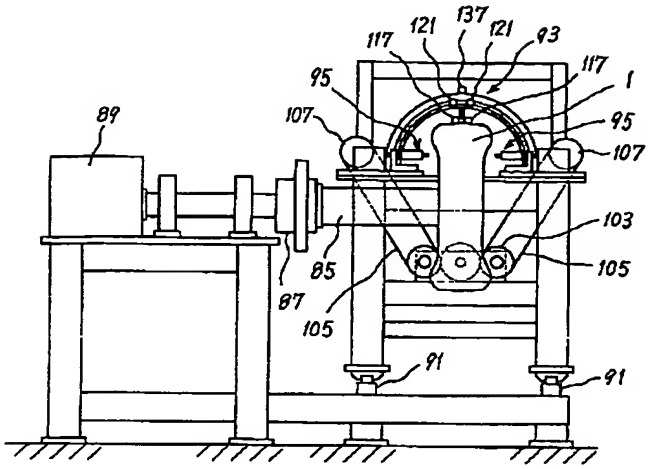

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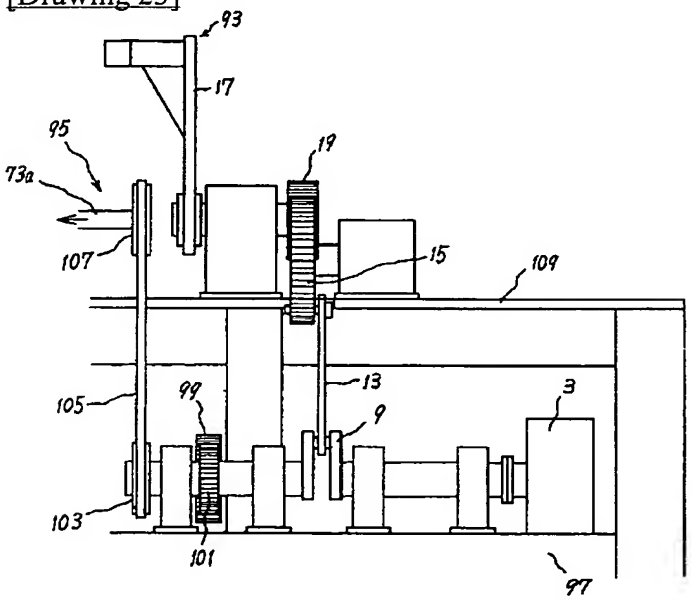

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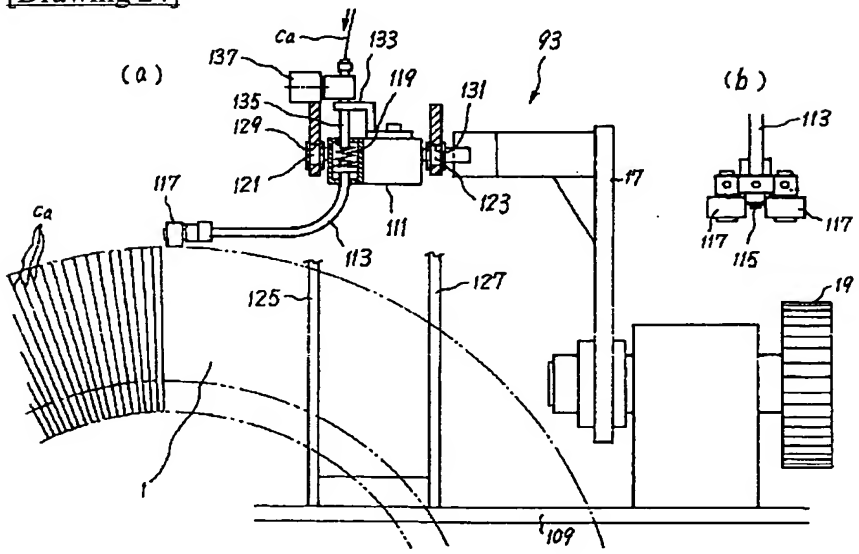

[Translation done.]